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### (54) PRODUCTION OF GALLIUM NITRIDE CRYSTAL

#### (57)Abstract:

**PROBLEM TO BE SOLVED:** To greatly enhance the activation of a p-type impurity by growth process alone by incorporating an annealing treatment for p-type activation under specific conditions into the growth process of a gallium nitride crystal at the time of producing this crystal by an org. metal vapor growth method.

**SOLUTION:** The gallium nitride crystal having a p-n junction is produced by the vapor growth method using the org. metal and ammonia which are the raw materials for the gallium nitride crystal. At this time, only the gaseous nitrogen is used or a gaseous mixture composed of the gaseous nitrogen and gaseous hydrogen having the ratio of the gaseous nitrogen at 70 to <100% is used as the atmosphere in the temp. region of  $\leq 1000^{\circ}\text{C}$  in the cooling process after the film formation of the gallium nitride crystal is executed in a gaseous hydrogen atmosphere.

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